General Operating Permit Application

for

Basic State and Intermediate Stationary and Portable Ready Mix Concrete Operations

March 1997

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Acronyms

Btu	British Thermal Units
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CSR	Code of State Regulations
DSCF	Dry Standard Cubic Feet
EIQ	Emissions Inventory Questionnaire
EPA	Environmental Protection Agency
HAP	Hazardous Air Pollutant
HC	Hydrocarbon
hp	Horsepower
I/M	Inspection and Maintenance
kPa	Kilo Pascals
MDNR	Missouri Department of Natural Resources
Mgal	Thousand Gallon
MMBtu	Million British Thermal Units
MMCF	Million Cubic Feet
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standards
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NMHC	Non Methane Hydrocarbons
NOV	Notice of Violation
NO_x	Oxides of Nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
O_3	Ozone (Troposheric and Stratospheric)
Pb	Lead
PM	Particulate Matter
PM_{10}	Particulate Matter with an aerodynamic diameter less than 10 µm
ppm	Parts per Million
PSD	Prevention of Significant Deterioration
psia	Pounds Per Square Inch
PTE	Potential To Emit
SCC	Source Classification Code
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
tph	Ton Per Hour
TRS	Total Reduced Sulfur compounds
TSP	Total Suspended Particulate Matter
VOC	Volatile Organic Compound

SECTION 1. INTRODUCTION

Stationary and portable ready mix concrete operations in Missouri have the opportunity to obtain a general operating permit. The general permit is available to Basic and Intermediate installations. The general permit is not available to major (Part 70, Title V) installations.

Any ready mix concrete operation located adjacent or on the same site with an asphalt concrete plant that is owned/controlled by the same company can utilize the general permit for ready mix concrete operations as long as the asphalt concrete plant is not a major source under Title III (and/or Title V) of the Clean Air Act. The asphalt concrete plant itself cannot use this general permit.

The ready mix concrete operations general permit does not address and therefore cannot be used if the facility has:

- Dryer or calciner emission units
- Boilers larger than 10 MMBtu/hr (3,930 mechanical hp, 299 boiler hp)
- Any petroleum liquids storage tank constructed after June 11, 1973, and before May 19, 1978, with a capacity greater than 65,000 gallons.
- Any petroleum liquids storage tank constructed after March 8, 1974 and before June 23, 1984, with a capacity greater than 40,000 gallons and a maximum true vapor pressure greater than 1.0 psia.
- Any volatile organic liquid storage tank constructed after July 23, 1984, with a capacity greater than or equal to 39,890 gallons and a maximum true vapor pressure greater than 3.5 kPa (0.5 psia). Fuel oil and diesel fuel have vapor pressures lower than 3.5 kPa.
- Any volatile organic liquid storage tank constructed after July 23, 1984, with a capacity greater than or equal to 19,813 gallons and a maximum true vapor pressure greater than 15.0 kPa (2.2 psia). Fuel oil and diesel fuel have vapor pressures lower than 15.0 kPa. Batch cold, batch vapor, or in-line solvent cleaning machines with a capacity greater than 2 gallons and use one or more of the following solvents in concentrations greater than 5% by weight: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, and chloroform.

The general permit application package is designed to help you determine your operating permit application classification and lead you through the appropriate forms to complete an application. The general permit application package is organized as follows.

Section 1.	Introduction and description of Missouri's operating permit program.
Section 2.	Section 2 will determine your operating permit classification. A table/spreadsheet is available to assist in calculating your potential to emit.
Section 3.	Section 3 describes the forms required for completion of the general permit application and contains the instructions for each form.
Worksheet A.	Potential to Emit Worksheet
Worksheet B.	Voluntary Conditions Determination Worksheet

Missouri Operating Permit Program

The Missouri operating permit program consists of a three level permit program. Classification into a particular operating permit level depends on your facility's potential to emit.

- Part 70 (major source, Title V)
- Intermediate (Synthetic Minor)
- Basic State

Part 70 Applicability

The purpose of a Part 70 permit is to consolidate all air emission information into a single document. The permit will serve as a single enforcement document for regulators. A major source (Part 70) permit is required for your facility if any of the following applies.

a) Source with potential emissions greater than 100 tons/year of any criteria pollutant.

b) Source in non-attainment areas with potential emissions greater than 100 tpy or more of VOC or NO_x in areas classified as marginal or moderate, 50 tpy or more in areas classified as serious, 25 tpy or more in areas classified as severe, and 10 tpy or more in areas classified as extreme.

c) Source with potential emissions greater than 10 tons/year of any individual hazardous air pollutant or an aggregate of 25 tons/year of any combination of hazardous air pollutants

d) Sources subject to a standard under section 111 of the Clean Air Act. Section 111 corresponds to the NSPS found in 40 CFR Part 60. The standards apply only to stationary sources, the construction or modification of which commences after regulations are proposed by publication in the federal register. The New Source Performance Standards are adopted by reference in 10 CSR 10-6.070.

e) Sources subject to a standard under Section 112 of the Clean Air Act. Section 112 corresponds to the NESHAPs and HAP requirements developed under 40 CFR Part 61 and Part 63. The NESHAPs are adopted by reference in 10 CSR 10-6.080.

f) An affected source under Title IV

g) Solid waste incinerator subject to Section 129(e) of the Clean Air Act

h) A source category designated by the administrator as a Part 70 source pursuant to 40 CFR 70.3

Missouri has deferred the requirement to obtain a Part 70 permit for sources that would be Part 70 sources strictly due to the fact that they are subject to a NSPS, NESHAP, or HAP requirement. At the current time these sources are not subject to Part 70 source requirements until November 15, 1999 or until the administrator subjects the installation to the requirements by rule. Sources are not required to obtain a permit solely because they are subject to Section 112(r) of the Act.

Intermediate Applicability

An Intermediate operating permit is applicable when facilities, otherwise subject to Part 70, voluntarily limit their emissions to less than the major source thresholds to avoid Part 70 requirements.

Potential to emit is commonly limited on the basis of type of material combusted or processed, operating rates or hours of operation. Any voluntary provision designed to limit an installation's potential to emit will be federally enforceable. The voluntary provision must be at least as stringent as any other applicable limitation or requirement contained in the implementation plan or enforceable under the implementation plan and permanent, quantifiable and otherwise enforceable as a practical matter.

Basic State Applicability

A Basic State operating permit is required for the following sources.

a) Source with existing potential emission less than major source thresholds but greater than the *de minimis* levels.

Pollutant	*De Minimis* Emission Levels (tpy)	Pollutant	*De Minimis* Emission Levels (tpy)
PM_{10}	15.0	Sulfuric acid mist	7.0
Sulfur dioxide	40.0	Hydrogen sulfide	10.0
Nitrogen oxides	40.0	Vinyl chloride	1.0
Carbon monoxide	100.0	Total reduced sulfur	10.0
Ozone (measured as VOC)	40.0	Reduced sulfur compounds	10.0
Lead	0.6	Municipal waste combustor organics	3.5 x E-6
Fluorides	3.0	Municipal waste combustor metals	15.0
Mercury	0.1	Municipal waste combustor acid gases	40.0
Beryllium	0.0004	HAPs each	10.0
Asbestos	0.007	HAPs total	25.0

b) Source with emission levels less than *de minimis* but has an incinerator (not a solid waste incinerator) or asphaltic concrete plant. An incinerator is defined as any article, machine, equipment, contrivance, structure or part there of which is used to burn refuse or to process refuse material by burning other than open burning. Asphaltic concrete plant is not specifically defined.

c) Source subject to a NSPS limitation or other requirement. At the current time these sources are not subject to Part 70 source requirements until November 15, 1999 or until the administrator subjects the installation to the requirements by rule.

d) Your installation is subject to a NESHAP or other HAP requirement, except that these sources are not required to obtain a permit solely because they are subject to Section 112(r) of the Act. At the current time these sources are not subject to Part 70 source requirements until November 15, 1999 or until the administrator subjects the installation to the requirements by rule.

Part 70 Deferral

At this time, any facility that qualifies as a "Part 70 deferral" facility is exempt from major source requirements until November 15, 1999 or until the administrator subjects the installation to the requirements by rule.

Part 70 Deferral facilities are any installation whose potential to emit is less than major source thresholds (including Intermediates, Basic State, and less than *de minimis* facilities) and has a source subject to a NSPS limitation or requirement.

At the current time, all Part 70 Deferral installations must obtain a Basic State operating permit.

Operating Permit Program Exemptions

The operating program does not apply to:

a) Facilities whose potential to emit are below the *de minimis* emission levels and are not subject to a NSPS limitation, NESHAP, or other HAP requirement.

b) Sand and gravel operations that have a maximum capacity to produce less than seventeen and one-half (17.5) tons of product per hour and use only natural gas as fuel when drying [10 CSR 10-6.060(1)(D)(2)(G)].

Operating Permit Application Submittal Dates

Based on the effective date of May 13, 1996, the operating permit application due dates are as follows:

Permit Classification	Due Date
Part 70, Year 1	July 15, 1996
Intermediate (actual emissions >50% of major source thresholds)	July 15, 1996
Part 70, Year 2 and Year 3	May 13, 1997
Intermediate (actual emissions <50% of major source thresholds)	May 13, 1997
Basic State	May 13, 1998

SECTION 2. OPERATING PERMIT PROGRAM APPLICABILITY

In determining applicability of the operating permit program to your facility, you need to know your potential to emit. Potential to emit is the emission rate of any pollutant at maximum design capacity. Annual potential shall be based on the maximum annual-rated capacity of the installation assuming continuous year-round operation. Federally enforceable permit conditions on the type of materials combusted, or processed, operating rates, hours of operation or the application of air pollution control equipment are used in determining the annual potential. State construction permits are federally enforceable and the restrictions in the permits are used to limit potential to emit.

In recent guidance, EPA concluded that the definition of regulated air pollutants under the operating permit program applies only to emissions of PM_{10} (particulate matter with an aerodynamic diameter of less than 10 microns) and not to PM therefore potential to emit is based on PM_{10} emissions.

The following table classifies emission sources typical to ready mix concrete operations as point or fugitive emission sources. All emission sources classified as point sources are included in potential to emit calculations. Fugitive PM_{10} emissions, defined as those which can not reasonably pass through a stack or vent, are not required to be counted in determining Part 70 operating permit applicability. However, fugitive PM_{10} emissions are to be counted in determining the Basic State operating permit applicability.

Point Sources	Fugitive Sources
Weigh hopper loading	Haul roads
Sand & aggregate transfer to elevated bin	Stockpiles
Cement unloading to elevated storage silo - pneumatic	Material loading/unloading/handling
Cement unloading to elevated storage silo - bucket elevator	Storage Tanks
Mixer loading (central mix)	
Truck loading (truck mix)	
Heaters/boilers/internal combustion engines	
Solvent metal cleaning	

Potential to Emit Determination

Fill out the following table with your facility's potential to emit. If you do not know your facility's potential to emit, go to Worksheet A.

Worksheet A contains a list of state approved emission factors for ready mix concrete operations and a table (can be used as a spreadsheet in Microsoft Excel format) to assist in calculating the potential to emit of your facility. Worksheet A also includes a table to use to estimate emission from heaters, boilers, and non-mobile internal combustion engines. After completing Worksheet A, transfer the values into the table below and go to the next page.

Pollutant	Potential Emissions (tpy)	Major Source Threshold (tpy)	Basic State Threshold (tpy)
PM_{10}	_____	100	15
NO_x	_____	100	40
SO_2	_____	100	40
CO	_____	100	100
VOC	_____	100*	40
HAP (single)	_____	10	10
HAPs (total)	_____	25	25

*St. Louis Metropolitan area may drop to 50 tpy.

Program Applicability Determination

To determine which operating permit program is applicable to your facility, answer the following questions. Any installation located adjacent or on the same site with an asphalt concrete plant that is owned/controlled by the same company can utilize the general permit for ready mix concrete operations as long as the asphalt concrete plant is not a major source under Title III (and/or Title V) of the Clean Air Act. The asphalt concrete plant itself cannot use this general permit.

The ready mix concrete operations general permit does not address and therefore cannot be used if the facility has any of the emission units outlined in Section 1, Introduction, of this document.

1. Does the potential to emit of your facility, excluding fugitive sources, exceed the major source thresholds for any of the pollutants? (for thresholds see Part 70 applicability, page 2)

   ☐ YES Go to question 2.
   ☐ NO Go to question 3.

2. Are you willing to restrict your throughput or establish additional control measures to restrict your potential to emit to below major source thresholds?

   ☐ YES Proceed to Worksheet B to determine what facility wide or emission unit specific limitations will be imposed. Your facility will require an Intermediate operating permit. If any voluntary conditions or limitations are placed on the facility or an emission unit, the facility must complete a Form 4B and also show what recordkeeping/monitoring requirements will be used to demonstrate compliance for that condition or limitation. Go to Section 3.
   ☐ NO Your facility will require a Part 70 operating permit and is eligible for the general permit. Contact the Missouri Department of Natural Resources (MDNR) for a copy of the operating permit application package.

3. Does the potential to emit of your facility, including fugitive emissions, exceed the Basic State thresholds?

   ☐ YES Your facility will require a Basic State operating permit. Go to Section 3.
   ☐ NO Proceed to question 4.

4. Since you answered “no” to questions 1 and 3, your facility is exempt from the operating permit program.

SECTION 3. SPECIFIC FORM INSTRUCTIONS

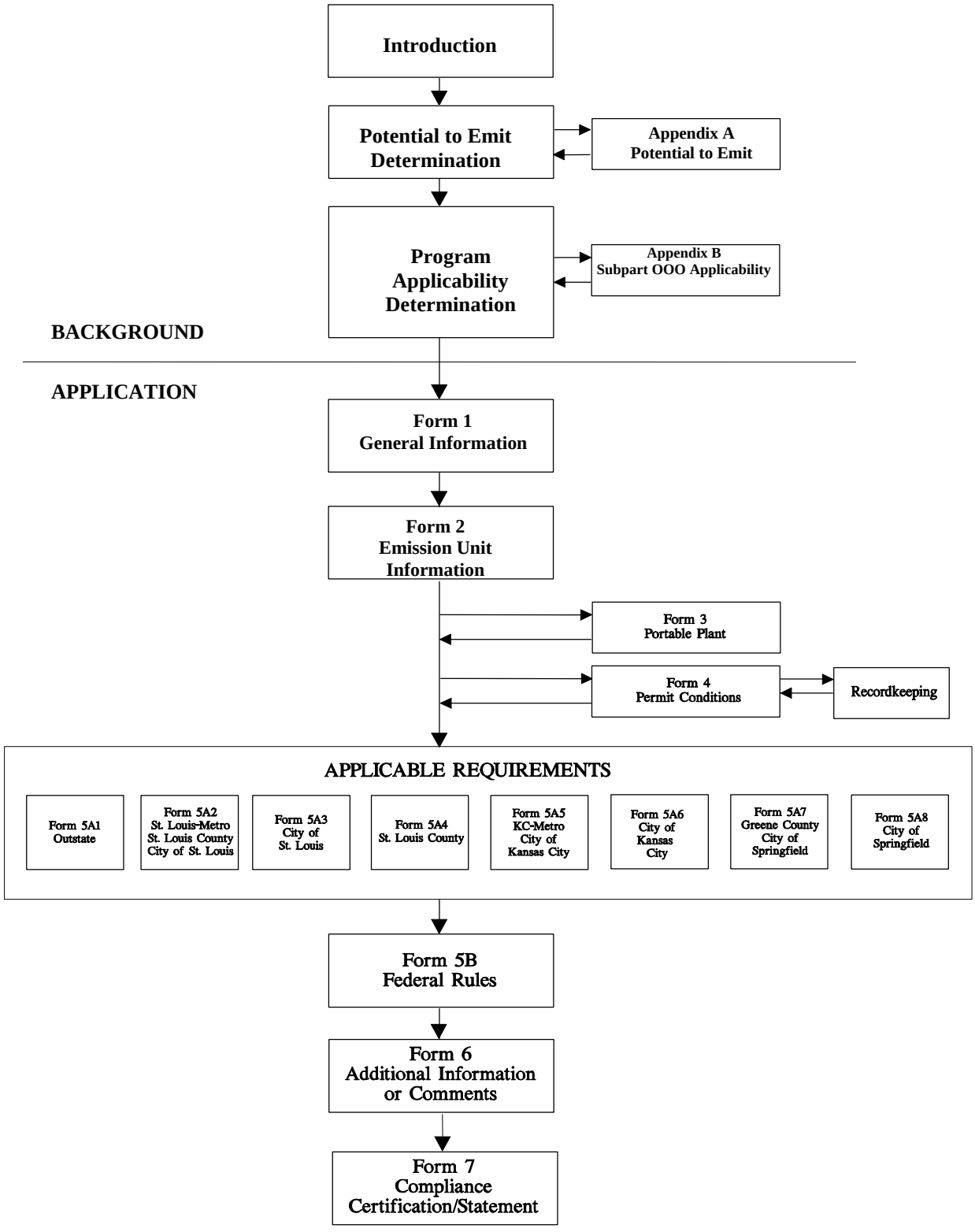
The general permit application package consists of a series of forms. Which forms are necessary for your general permit application depends upon the emission units at your facility and the facility's geographic location.

From the following table, choose the geographic location of your facility. The third column details the forms that are **required** to be submitted with your application. The fourth column summarizes the forms that **may** need to be submitted depending on your facility's specific equipment and operation. Submit only those forms needed to complete your application. Extra forms can be discarded.

Regulatory Authority	Location of Installation	Required Forms	Optional Forms
Outstate Missouri Area	All areas not specifically listed below	1, 5A1, 5B, 7	2A-2V, 3, 4A, 4B
St. Louis Metropolitan Area	St. Charles, Jefferson, and Franklin Counties (not including St. Louis City and County)	1, 5A2, 5B, 7	2A-2V, 3, 4A, 4B
City of St. Louis	City of St. Louis	1, 5A2, 5A3, 5B, 7	2A-2V, 3, 4A, 4B
St. Louis County	St. Louis County	1, 5A2, 5A4, 5B, 7	2A-2V, 3, 4A, 4B
Kansas City Metropolitan Area	Clay, Cass, Buchanan, Ray, Jackson, and Platt Counties (not including the city of Kansas City)	1, 5A5, 5B, 7	2A-2V, 3, 4A, 4B
City of Kansas City	City of Kansas City	1, 5A5, 5A6, 5B, 7	2A-2V, 3, 4A, 4B
Springfield - Greene County	Green County (not including the City of Springfield)	1, 5A7, 5B, 7	2A-2V, 3, 4A, 4B
City of Springfield	City of Springfield	1, 5A7, 5A8, 5B, 7	2A-2V, 3, 4A, 4B

A flowchart of the general permit application process is shown on the following page.

Design of General Permit Application Process



Form 1: General Information

Form 1 requests the general plant information and other related information for the facility. Form 1 is required for all applications.

- *General Application Information.* Enter the general plant information for the facility. This information is similar to EIQ Form 1.0.
- *Type of Application.* Check whether you are requesting an Intermediate or Basic State application. Also, check "initial" if this is a first-time operating permit application for this installation. Check others as they apply.
- *EIQ*. Check "yes" if you have submitted an EIQ and enter the date of the most recent EIQ submitted. If you answered "no," submit two copies of the EIQ for the previous calendar year with this application and indicate the number and type of each form attached.
- Original signature of the responsible company official on each application

Completed applications should be mailed in **duplicate** with a **$100 application fee** to one of the following addresses.

Geographic Location	Submittal Address
Outstate Missouri St. Louis Metropolitan Area Kansas City Metropolitan Area Springfield - Greene County	Missouri Department of Natural Resources Air Pollution Control Program Operating Permit Unit P.O. Box 176 Jefferson City, MO 65102-0176
City of St. Louis	Division of Air Pollution Control 1220 Carr Lane Avenue St. Louis, MO 63104
St. Louis County	St. Louis County Department of Health Air, Land & Water Branch Air Pollution Control Section 111 South Meramec Clayton, MO 63105
City of Kansas City	Kansas City Health Department Air Quality Section 2400 Troost Suite 3000 Kansas City, MO 64108
City of Springfield	Air Pollution Control Authority 227 East Chestnut Expressway Springfield, MO 65802

Form 2: Emission Unit Information

A separate Form 2 exists for each type of emission unit at a facility eligible for the ready mix concrete operations general permit. A list of Form 2s is shown below. Each emission unit, including fugitive sources, should be listed on a Form 2.

Form 2A1:	Reserved
Form 2A2:	Reserved
Form 2B1:	Reserved
Form 2B2:	Reserved
Form 2C1:	Reserved
Form 2C2:	Reserved
Form 2D1:	Reserved
Form 2D2:	Reserved
Form 2E1:	Reserved
Form 2E2:	Emission Unit Information - Bagging Operation - Non - NSPS
Form 2F1:	Reserved
Form 2F2:	Reserved
Form 2G1:	Reserved
Form 2G2:	Reserved
Form 2H1:	Reserved
Form 2H2:	Reserved
Form 2I:	Reserved
Form 2J:	Emission Unit Information - Haul Roads
Form 2K:	Emission Unit Information - Stockpiles
Form 2L:	Emission Unit Information - Material Loading/Unloading/Handling
Form 2M:	Emission Unit Information - Sand Aggregate Transfer to Elevated Bin
Form 2N:	Emission Unit Information - Cement Unload to Silo
Form 2O:	Emission Unit Information - Weigh Hopper Loading
Form 2P:	Emission Unit Information - Mixer Loading (Central Mix)
Form 2Q:	Emission Unit Information - Truck Loading (Truck Mix)
Form 2R1:	Emission Unit Information - Storage Tanks - NSPS
Form 2R2:	Emission Unit Information - Storage Tanks - Non - NSPS
Form 2S:	Emission Unit Information - Heaters/Boilers - Non - NSPS
Form 2T:	Emission Unit Information - Non-mobile Internal Combustion Engines
Form 2U:	Emission Unit Information - Solvent Metal Cleaning
Form 2V:	Emission Unit Information - Miscellaneous

Emission units subject to NSPS standards should not be listed on the same form as non-NSPS units.

Each Form 2 has "pre-numbered" emission unit numbers for each piece of equipment. These numbers will standardize the emission unit numbering state-wide. The AIRS I.D. column is on each Form 2 for the facility to track existing MDNR tracking numbers and other facility specific designations to the new standardized numbering system.

Form 2E2 - Bagging Operation

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2. Include serial number of equipment in description, if available.

Manufacturer's Rated Capacity - Enter the manufacturer's rated capacity or permitted rate in tons/hr of the bagging operation.

Date of Manufacture/Modification/Reconstruction - Enter the date of manufacture or date of most recent modification or reconstruction.

Forms 2J - Haul Roads (fugitive)

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2.

Forms 2K - Stockpiles (fugitive)

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2.

Forms 2L - Material Loading/Unloading/Handling (fugitive)

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2.

Forms 2M - Sand Aggregate Transfer to Elevated Bin

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2. Include serial number of equipment in description, if available.

Manufacturer's Rated Capacity - Enter the manufacturer's rated capacity or permitted rate in tons/hr of the sand aggregate transfer to elevated bin.

Date of Manufacture/Modification/Reconstruction - Enter the date of manufacture or date of most recent modification or reconstruction.

Forms 2N - Cement Unload to Silo

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2. Include serial number of equipment in description, if available.

Manufacturer's Rated Capacity - Enter the manufacturer's rated capacity or permitted rate in tons/hr of the cement unload to silo.

Date of Manufacture/Modification/Reconstruction - Enter the date of manufacture or date of most recent modification or reconstruction.

Forms 2O - Weigh Hopper Loading

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2. Include serial number of equipment in description, if available.

Manufacturer's Rated Capacity - Enter the manufacturer's rated capacity or permitted rate in tons/hr of the weigh hopper loading.

Date of Manufacture/Modification/Reconstruction - Enter the date of manufacture or date of most recent modification or reconstruction.

Forms 2P - Mixer Loading (Central Mix)

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2. Include serial number of equipment in description, if available.

Manufacturer's Rated Capacity - Enter the manufacturer's rated capacity or permitted rate in tons/hr of the mixer loading (central mix).

Date of Manufacture/Modification/Reconstruction - Enter the date of manufacture or date of most recent modification or reconstruction.

Forms 2Q - Truck Loading (Truck Mix)

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2. Include serial number of equipment in description, if available.

Manufacturer's Rated Capacity - Enter the manufacturer's rated capacity or permitted rate in tons/hr of the truck loading (truck mix).

Date of Manufacture/Modification/Reconstruction - Enter the date of manufacture or date of most recent modification or reconstruction.

Forms 2R1 and 2R2 - Storage Tanks

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2. Include serial number of equipment in description, if available.

Capacity - Enter tank capacity in gallons.

Material Stored - Enter material stored in tank (fuel oil, diesel, kerosene, solvent, other).

Vapor pressure - Enter the vapor pressure of the material stored.

Date of Manufacture/Modification/Reconstruction - Enter the date of manufacture or date of most recent modification or reconstruction.

Forms 2S - Heaters/Boilers

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2. Include serial number of equipment in description, if available.

Manufacturer's Rated Capacity - Enter the manufacturer's rated capacity or permitted rate in hp or MMBTU of heat input of the heaters/boilers.

Date of Manufacture/Modification/Reconstruction - Enter the date of manufacture or date of most recent modification or reconstruction.

Forms 2T - Non-Mobile Internal Combustion Engines

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2. Include serial number of equipment in description, if available.

Manufacturer's Rated Capacity - Enter the manufacturer's rated capacity or permitted rate in hp or MMBTU of the non-mobile internal combustion engines.

Date of Manufacture/Modification/Reconstruction - Enter the date of manufacture or date of most recent modification or reconstruction.

Forms 2U - Solvent Metal Cleaning

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2. Include serial number of equipment in description, if available.

Storage Vessel Capacity - Enter capacity in gallons.

Date of Manufacture/Modification/Reconstruction - Enter the date of manufacture or date of most recent modification or reconstruction.

Forms 2V - Miscellaneous

On this form, list out each emission unit not identified on a previous Form 2. Any emission units on Form 2V must be added to your appropriate Form 5s.

AIRS I.D. - Enter the AIRS I.D. from the EIQ. Other in-house tracking numbers can also be used in this blank. (e.g. EIQ #, serial number, portable vs. stationary designation)

Emission Unit Description - Brief description of emission unit. Similar to the description on EIQ Form 1.2. Include serial number of equipment in description, if available.

Manufacturer's Rated Capacity - Enter the manufacturer's rated capacity or permitted rate in appropriate units for the emission unit.

Date of Manufacture/Modification/Reconstruction - Enter the date of manufacture or date of most recent modification or reconstruction.

Form 3: Portable Plant Form

If your facility is a portable plant with multiple permitted locations, write the site number, site location, quarter section, section, township, and range to Form 3 for each existing portable facility permit number.

Form 4A: Existing Permit Conditions

Form 4A is to be utilized by those facilities that have permit conditions that are applicable to the entire facility or to specific emission units. Identify the permit number, condition number (including general conditions), emission unit number, a description of the applicable permit condition, and list/describe the methodology currently being utilized to demonstrate compliance with each of the existing permit conditions. All existing permit conditions must be listed on Form 4A. Any existing state only permit conditions will continue to be state enforceable only.

Form 4B: Volunteered Permit Conditions

Form 4B is to be utilized for Intermediate applications only. List any proposed conditions you wish to establish in the general permit in order to avoid major source classification (Worksheet B). Identify the proposed condition number, emission unit number, a description of the proposed permit condition, and describe the methodology to be used to demonstrate compliance with the proposed condition. Develop a general recordkeeping form to demonstrate compliance with any permit conditions added. Sample forms are included at the end of this section. A volunteered permit condition listed on Form 4B will become a federally enforceable permit condition.

Form 5. Applicable Requirements

Form 5 contains all requirements that are potentially applicable to a ready mix concrete operations covered by this general permit. The applicable regulations on the Form 5A's are for state and local rules and are organized by geographical regulatory authority. Form 5B contains applicable federal regulations. The first step in using this form is to identify the appropriate forms to submit with your application. The following table provides an outline of which forms apply to an installation.

Regulatory Authority	Form
Outstate Missouri Area	5A1, 5B
St. Louis Metropolitan Area	5A2, 5B
City of St. Louis	5A2, 5A3, 5B
St. Louis County	5A2, 5A4, 5B
Kansas City Metropolitan Area	5A5, 5B
City of Kansas City	5A5, 5A6, 5B
Springfield - Greene County Area	5A7, 5B
City of Springfield - Greene County	5A7, 5A8, 5B

Form 5 has been completed for those applicable to the general operating permit. To the left of each state or local regulation listed in a Form 5A is a column headed "Form Number." The emission unit specific regulations listed in the Form 5A's have form numbers listed in the column such as "2A1" identifying that the specific regulation applies to a crusher.

The regulations that are applicable to all installations and emission units have the "Form Number" column filled in with "Facility-Wide."

All installations must also submit a Form 5B. Form 5B contains all potentially applicable federal rules.

Applicants must read through these requirements to verify the applicability of each regulation as well as to determine the compliance status with each requirement.

Form 6. Additional Information or Comments

Form 6 is for the facility to provide additional information or comments about their application submittal.

Form 7. Compliance Certification/Statement

On Form 7 a facility certifies compliance with all applicable requirements. The form has a section to denote any requirements for which the source is out of compliance and how compliance will be achieved with the applicable requirement.

For example, after reviewing the regulations applicable to your facility in the appropriate Form 5s you notice you are out of compliance with an opacity standard. On Form 7, you denote the standard for which you are out of compliance and how compliance will be attained.

The facility shall determine compliance with all applicable requirements annually. The compliance certification shall be submitted by April 1st each year. If the facility is determined to be out of compliance with any applicable requirement, Section 2 of Form 7 must also be completed.

The last section of Form 7 is for a certification signature. Each copy of the application must be signed by a responsible official. A responsible official is:

A. The president, secretary, treasurer or vice-president of a corporation in charge of a principal business function, or any other person who performs similar policy and decision-making functions for the corporation or a duly authorized representative of this person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying or subject to a permit and either

   (I) The facilities employ more than two hundred and fifty persons or have a gross annual sales or expenditures exceeding twenty-five million dollars (in second quarter 1980 dollars); or

   (II) The delegation of authority to his representative is approved in advance by the permitting authority.

B. A general partner in a partnership or the proprietor in a sole proprietorship.

C. Either a principal executive officer or a ranking elected official in a municipality, state, federal, or other public agency. For the purpose of this part, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the operations of a principal geographic unit of the agency; or

D. The designated representative of an affected source insofar as actions, standards, requirements or prohibitions under IV of the Clean Air Act or the regulations promulgated under the Act are concerned and the designated representative for any purposes under Part 70 (10 CSR 10-6.020).

Company Name:
County-Plant #:xxx-xxxx
Location of Facility:
County Name, CSTR Legal Description

Monthly PM_{10} Emissions Tracking Record

Copy this sheet as needed.

	Column 1	Column 2*	Column 3**	Column 4***
Month	**Monthly Amount of Concrete Produced (tons)**	**PM_{10} Emission Factor (lbs/ton)**	**Monthly PM_{10} Emissions (Tons)**	**12-Month PM_{10} Emission (Tons/yr)**

* Sum of emission factors of all processes taking contrl factors into account

** Column 1 x Column 2 x 0.0005

*** Sum of last 12-months of Column 3. NOTE: A 12-Month Total PM_{10} Emissions of not in excess of 100.0 tons for column 4 indicates compliance. This limitation is based on an approximate annual production rate of xxx,xxx tons of rock crushed.

Company Name:
County-Plant #:xxx-xxxx
Location of Facility:
County Name, CSTR Legal Description

Daily PM_{10} Emissions Tracking Record

Copy this sheet as needed.

Date	**Daily Concrete Production (tons)**	**PM_{10} Emission Factor (lbs/ton)**	**Daily PM_{10} Emissions (lbs)**	**Date**	**Daily Concrete Production (tons)**	**PM_{10} Emission Factor (lbs/ton)**	**Daily PM_{10} Emissions (lbs)**
	Composite PM_{10} Emission Factor				Composite PM_{10} Emission Factor		

Note: The daily PM_{10} (lbs) is obtained by multiplying the Daily Production (Tons) by the PM_{10} Emission factor (lb/Ton). A daily PM_{10} emission rate of note more than XXX.X pounds (approximately XXXX Tons of Rock hauled per day) indicates compliance.

WORKSHEET A - POTENTIAL TO EMIT WORKSHEET

There are numerous methodologies available to calculate potential to emit. Factors that may significantly effect the potential to emit calculations are:

- Emission factors
- Assumed control efficiencies
- Inclusion of emission sources

Two tables were prepared to assist in the calculation of potential to emit. The first table, "Spreadsheet For PM_{10} Emission Calculations" is for calculating PM_{10} emissions from non combustion related emission sources common to the industries covered by the general permit. The second table, "Spreadsheet For Criteria Pollutant Emissions From Heaters, Boilers, and Non-Mobile Internal Combustion Engines" is to be used to estimate potential emissions from combustion sources.

Over the years the emission factors available to estimate emissions have changed. The factors used in construction permits and the annual emission inventories may not match. Table A-1 contains the emission factors from AP-42, Section 11.12, Concrete Batching,[1] which can be used to estimate emissions from concrete batching operations. For purposes of applicability of the operating permit program these emission factors can be used and are built into the Worksheet A table for PM_{10} calculations.

Table A-1. PM and PM_{10} emission factors for concrete batching.

Source	SCC Number	Uncontrolled PM lb/ton (lbs/yd^3)	Uncontrolled PM_{10} lb/ton (lbs/yd^3)
Sand & aggregate transfer to elevated bin	3-05-011-06	0.029 (0.05)	
Pneumatic cement unloading to elevated storage silo	3-05-011-07	0.27 (0.07)	
Bucket elevator cement unloading to elevated storage silo	3-05-011-07	0.24 (0.06)	0.14 (0.035)
Weigh hopper loading	3-05-011-08	0.02 (0.04)	0.01 (0.020)
Mixer loading (central mix)	3-05-011-09	0.04 (0.07)	0.02 (0.035)
Truck loading (truck mix)	3-05-011-10	0.02 (0.04)	0.01 (0.020)
Bagging operation	3-05-011-99		0.12 lb/ton
Haul Roads	3-05-020-11	6.2 lb/VMT or EIQ Form 2.7 factor	
Stockpiles	3-05-020-07	0.12 lb/ton or EIQ Form 2.8 factor	

[1]U.S. EPA Office of Air Quality Planning and Standards, *Compilation of Air Pollutant Emission Factors, AP-42*. Section 11.12 Concrete Batching. Research Triangle Park, North Carolina, January 1995.

A table to assist in estimating criteria pollutant emissions from heaters boilers, and non-mobile internal combustion engines is also provided. Emissions sources classified as fugitive are not included in the potential to emit calculations to determine Part 70 operating permit program applicability. However, fugitive emissions are included in the potential to emit calculations to determine the Basic State operation permit applicability.

Potential to emit for an emission unit is the emission rate of any pollutant at maximum design capacity assuming continuous year-round operation. The annual potential to emit for a facility is the summation of the potential to emit for all emission units. Federally enforceable permit conditions on the type of materials combusted or processed, operating rates, hours of operation or the application of air pollution control equipment are used in determining the annual potential to emit.

To use the attached spreadsheet entitled "Spreadsheet For PM_{10} Emission Calculations", complete an emission calculation block for each emission unit by:

1. Entering the process ID #
2. Entering the allowable process throughput in tons/yr
3. Entering 1 (one) in one of the cells indicating the type of pollution control utilized

EXAMPLE 1

Mixer Loading

EU1	Process I.D.		Below-ground-level dry
	Actual Processed (tpy)		Passive
	Rated Capacity (tph)	1	Active
100,000	Allowable (tpy)		Bag

The actual processed tons/yr and rated capacity are not required but can be used for informational purposes. Entering the rated capacity in lbs/hr automatically calculates the annual allowable assuming unrestricted annual operation (8,760 hours). If restricted to less than this, type the appropriate value in the allowable tons/yr cell.

If the facility uses a combination of pollution controls, for example, a facility is limited to 90 percent of their allowable annual throughput being controlled with active suppression and 10 percent of allowable annual throughput uncontrolled using passive emission factors, enter 0.1 (10 percent) as the flag for passive and 0.9 (90 percent) as the flag for active, making sure that the summation of the two fractions is equal to one.

Alternatively list the process twice, with a specific annual allowable ton per year throughput for both active and passive processing.

EXAMPLE 2

Mixer Loading

EU1	Process I.D.		Below-ground-level dry
	Actual Processed (tpy)	0.1	Passive
	Rated Capacity (tph)	0.9	Active
100,000	Allowable (tpy)		Bag

Using a combination of emission factors and throughputs will require daily and monthly recordkeeping. Daily recordkeeping to calculate the emissions for each separate emission factor and monthly recordkeeping or an overall comparison to the 12-month rolling emission limitations to demonstrate compliance.

To use the attached spreadsheet entitled "Spreadsheet For Criteria Pollutant Emissions From Heaters, Boilers, and Non-Mobile Internal Combustion Engines" complete an emission unit row for each emission unit by:

1. Entering the process ID #
2. Entering the Source Description
3. Determine the appropriate emission factors for the source
4. Determine the process parameter upon which emissions are based (lbs/1000 gal or lb/MMCF)
5. Enter the Rated Capacity or Allowable Capacity of the unit in the units of the emission factor.
6. The total tons per year of PM_{10} from sources on this table/spreadsheet must be added to the total tons per year PM_{10} total calculated in the spreadsheet entitled "Spreadsheet For Aggregate Processing PM_{10} Emission Calculations"

WORKSHEET A - POTENITAL TO EMIT
SPREADSHEET FOR PM_{10} EMISSION CALCULATION

1) If the equipment is not covered by a state permit, which limits its potential, then the equipment is considered to be without controls and assumes operation at the maximum rated capacity for 8760 hours/yr for purposes of determining the potential to emit. Therefore, potential to emit will be calculated using the passive, below-grade, or active (for wet controlled and/or moisture content greater than 1.5% by weight) emission factors multiplied by the rated capacity of the equipment at 8760 hours/year.
2) When flagging an individual process as passive, active, or Baghouse, (by inserting a "1" in the space before the option") only control equipment which is included in a valid permit may be credited. A permit condition indicating the process is below grade level is not required to utilize the 50 % control option.
3) If an individual process is underground, enter an 0.2 in the appropriate cell, either passive or active, as the "Flag" to simulate a 80 % control (capture) efficiency. A permit condition indicating the process is underground is not required to utilize the 80% control option.
4) The 'active suppression' emission factors may be used for calculating potential to emit when the equipment uses either the application of a water based dust suppression system sufficient to provide the indicated control or if the moisture content of the rock is greater than 1.5% by weight. Additional controls, such as the capture efficiencies associated with operations being below-grade or underground, may also be included, if appropriate.

PROCESS TYPE		DESCRIPTION	CONTROL FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
CRUSHED STONE PROCESSING / SAND AND GRAVEL							
PRIMARY CRUSHER		PROCESS ID #		Below-grade dry	0.008500		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.017000		
		Rated Capacity (t/hr)		Active	0.004300		
	-	Allowable (t/yr)		Bag	0.000850	0.000	0.000
PRIMARY CRUSHER		PROCESS ID #		Below-grade dry	0.008500		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.017000		
		Rated Capacity (t/hr)		Active	0.004300		
	-	Allowable (t/yr)		Bag	0.000850	0.000	0.000
PRIMARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000
PRIMARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
SECONDARY CRUSHER		PROCESS ID #		Below-grade dry	0.008500		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.017000		
		Rated Capacity (t/hr)		Active	0.004300		
	-	Allowable (t/yr)		Bag	0.000850	0.000	0.000
SECONDARY CRUSHER		PROCESS ID #		Below-grade dry	0.008500		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.017000		
		Rated Capacity (t/hr)		Active	0.004300		
	-	Allowable (t/yr)		Bag	0.000850	0.000	0.000
SECONDARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000
SECONDARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000
TERTIARY CRUSHER		PROCESS ID #		Below-grade dry	0.056000		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.112000		
		Rated Capacity (t/hr)		Active	0.028000		
	-	Allowable (t/yr)		Bag	0.005600	0.000	0.000
TERTIARY CRUSHER		PROCESS ID #		Below-grade dry	0.056000		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.112000		
		Rated Capacity (t/hr)		Active	0.028000		
	-	Allowable (t/yr)		Bag	0.005600	0.000	0.000
TERTIARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000
TERTIARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
FINES CRUSHING /		PROCESS ID #		Below-grade dry	0.007500		
GRINDING MILL		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.002000		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
FINES CRUSHING /		PROCESS ID #		Below-grade dry	0.007500		
GRINDING MILL		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.002000		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
FINES SCREENING		PROCESS ID #		Below-grade dry	0.035500		
		Actual Processed (t/yr)		Passive (0 % control)	0.071000		
		Rated Capacity (t/hr)		Active	0.002100		
	-	Allowable (t/yr)		Bag	0.003550	0.000	0.000
FINES SCREENING		PROCESS ID #		Below-grade dry	0.035500		
		Actual Processed (t/yr)		Passive (0 % control)	0.071000		
		Rated Capacity (t/hr)		Active	0.002100		
	-	Allowable (t/yr)		Bag	0.003550	0.000	0.000
SCREENING		PROCESS ID #		Below-grade dry	0.060000		
(sand and gravel)		Actual Processed (t/yr)		Passive (0 % control)	0.120000		
		Rated Capacity (t/hr)		Active	0.000000		
	-	Allowable (t/yr)		Bag	0.006000	0.000	0.000
SCREENING		PROCESS ID #		Below-grade dry	0.060000		
(sand and gravel)		Actual Processed (t/yr)		Passive (0 % control)	0.120000		
		Rated Capacity (t/hr)		Active	0.000000		
	-	Allowable (t/yr)		Bag	0.006000	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
PILE FORMING STACKER		PROCESS ID #		Below-grade dry	0.030000		
		Actual Processed (t/yr)		Passive (0 % control)	0.060000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
PILE FORMING STACKER		PROCESS ID #		Below-grade dry	0.030000		
		Actual Processed (t/yr)		Passive (0 % control)	0.060000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
SURGE BIN OR		PROCESS ID #		Below-grade dry	0.000700		
STORAGE BIN OR		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
FEED HOPPER		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
SURGE BIN OR		PROCESS ID #		Below-grade dry	0.000700		
STORAGE BIN OR		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
FEED HOPPER		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
ENCLOSED TRUCK		PROCESS ID #		Below-grade dry	0.000050		
OR RAILCAR LOADING		Actual Processed (t/yr)		Passive (0 % control)	0.000100		
STATION / TRUCK LOADING		Rated Capacity (t/hr)		Active			
- CONVEYOR	-	Allowable (t/yr)		Bag		0.000	0.000
ENCLOSED TRUCK		PROCESS ID #		Below-grade dry	0.000050		
OR RAILCAR LOADING		Actual Processed (t/yr)		Passive (0 % control)	0.000100		
STATION / TRUCK LOADING		Rated Capacity (t/hr)		Active			
- CONVEYOR	-	Allowable (t/yr)		Bag		0.000	0.000
TRUCK UNLOADING		PROCESS ID #		Below-grade dry	0.000008		
(fragmented stone)		Actual Processed (t/yr)		Passive (0 % control)	0.000016		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
TRUCK UNLOADING		PROCESS ID #		Below-grade dry	0.000008		
(fragmented stone)		Actual Processed (t/yr)		Passive (0 % control)	0.000016		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
		PROCESS ID #		Below-grade dry			
DRILLING (WET)		Actual Processed (t/yr)		Passive (0 % control)			
		Rated Capacity (t/hr)		Active	0.000080		
		Allowable (t/yr)		Bag		0.000	0.000
		PROCESS ID #		Below-grade dry			
DRILLING (WET)		Actual Processed (t/yr)		Passive (0 % control)			
		Rated Capacity (t/hr)		Active	0.000080		
	-	Allowable (t/yr)		Bag		0.000	0.000
MATERIAL TRANSFER /		PROCESS ID #		Below-grade dry	0.003200		
CONVEYING		Actual Processed (t/yr)		Passive (0 % control)	0.006400		
(sand and gravel)		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
MATERIAL TRANSFER /		PROCESS ID #		Below-grade dry	0.003200		
CONVEYING		Actual Processed (t/yr)		Passive (0 % control)	0.006400		
(sand and gravel)		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
MATERIAL TRANSFER /		PROCESS ID #		Below-grade dry	0.003200		
CONVEYING		Actual Processed (t/yr)		Passive (0 % control)	0.006400		
(sand and gravel)		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
MATERIAL TRANSFER /		PROCESS ID #		Below-grade dry	0.003200		
CONVEYING		Actual Processed (t/yr)		Passive (0 % control)	0.006400		
(sand and gravel)		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
BULK LOADING		PROCESS ID #		Below-grade dry	0.001200		
(sand and gravel)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
BULK LOADING		PROCESS ID #		Below-grade dry	0.001200		
(sand and gravel)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000

PROCESS TYPE	DESCRIPTION	FLAGS	EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
CONCRETE BATCHING					
SAND AND AGGREGATE TRANSFER TO ELEVATED BIN	PROCESS ID #	Below-grade dry	0.014500		
	Actual Processed (t/yr)	Passive (0 % control)	0.029000		
	Rated Capacity (t/hr)	Active			
	- Allowable (t/yr)	Bag		0.000	0.000
SAND AND AGGREGATE TRANSFER TO ELEVATED BIN	PROCESS ID #	Below-grade dry	0.014500		
	Actual Processed (t/yr)	Passive (0 % control)	0.029000		
	Rated Capacity (t/hr)	Active			
	- Allowable (t/yr)	Bag		0.000	0.000
CEMENT UNLOADING TO ELEVATED STORAGE SILO - PNEUMATIC	PROCESS ID #	Below-grade dry	0.135000		
	Actual Processed (t/yr)	Passive (0 % control)	0.270000		
	Rated Capacity (t/hr)	Active			
	- Allowable (t/yr)	Bag		0.000	0.000
CEMENT UNLOADING TO ELEVATED STORAGE SILO - PNEUMATIC	PROCESS ID #	Below-grade dry	0.135000		
	Actual Processed (t/yr)	Passive (0 % control)	0.270000		
	Rated Capacity (t/hr)	Active			
	- Allowable (t/yr)	Bag		0.000	0.000
CEMENT UNLOADING TO ELEVATED STORAGE SILO - BUCKET ELEVATOR	PROCESS ID #	Below-grade dry	0.070000		
	Actual Processed (t/yr)	Passive (0 % control)	0.140000		
	Rated Capacity (t/hr)	Active			
	- Allowable (t/yr)	Bag		0.000	0.000
CEMENT UNLOADING TO ELEVATED STORAGE SILO - BUCKET ELEVATOR	PROCESS ID #	Below-grade dry	0.070000		
	Actual Processed (t/yr)	Passive (0 % control)	0.140000		
	Rated Capacity (t/hr)	Active			
	- Allowable (t/yr)	Bag		0.000	0.000
WEIGH HOPPER LOADING	PROCESS ID #	Below-grade dry	0.005000		
	Actual Processed (t/yr)	Passive (0 % control)	0.010000		
	Rated Capacity (t/hr)	Active			
	- Allowable (t/yr)	Bag		0.000	0.000
WEIGH HOPPER LOADING	PROCESS ID #	Below-grade dry	0.005000		
	Actual Processed (t/yr)	Passive (0 % control)	0.010000		
	Rated Capacity (t/hr)	Active			
	- Allowable (t/yr)	Bag		0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
MIXER LOADING		PROCESS ID #		Below-grade dry	0.010000		
(CENTRAL MIX)		Actual Processed (t/yr)		Passive (0 % control)	0.020000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
TRUCK LOADING		PROCESS ID #		Below-grade dry	0.005000		
(TRUCK MIX)		Actual Processed (t/yr)		Passive (0 % control)	0.010000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
BAGGING OPERATION		PROCESS ID #		Below-grade dry	0.060000		
		Actual Processed (t/yr)		Passive (0 % control)	0.120000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
BAGGING OPERATION		PROCESS ID #		Below-grade dry	0.060000		
		Actual Processed (t/yr)		Passive (0 % control)	0.120000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
		PROCESS ID #		Below-grade dry			
		Actual Processed (t/yr)		Passive (0 % control)			
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
		PROCESS ID #		Below-grade dry			
		Actual Processed (t/yr)		Passive (0 % control)			
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000

EMISSION SUMMARY

CRUSHED STONE PROCESSING / SAND AND GRAVEL	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
PRIMARY CRUSHING	0.000	0.000
SECONDARY CRUSHING	0.000	0.000
TERTIARY CRUSHING	0.000	0.000
FINES CRUSHING / GRINDING MILL	0.000	0.000
SCREENING (P,S, OR T)	0.000	0.000
SCREENING (FINES)	0.000	0.000
SCREENING (SAND AND GRAVEL)	0.000	0.000
TRANSFER POINTS	0.000	0.000
PILE FORMING STACKER	0.000	0.000
SURGE BIN, STORAGE BIN, OR FEED HOPPER	0.000	0.000
ENCLOSED TRUCK OR RAILCAR LOADING STATIONS / TRUCK LOADING - CONVEYOR	0.000	0.000
TRUCK UNLOADING (FRAGMENTED STONE)	0.000	0.000
DRILLING (WET)	0.000	0.000
MATERIAL TRANSFER / CONVEYING (SAND AND GRAVEL)	0.000	0.000
BULK LOADING (SAND AND GRAVEL)	0.000	0.000
CONCRETE BATCHING		
SAND AND AGGREGATE TRANSFER TO ELEVATED BIN	0.000	0.000
CEMENT UNLOADING TO ELEVATED STORAGE SILO - PNEUMATIC	0.000	0.000
CEMENT UNLOADING TO ELEVATED STORAGE SILO - BUCKET ELEVATOR	0.000	0.000
WEIGH HOPPER LOADING	0.000	0.000
MIXER LOADING (CENTRAL MIX)	0.000	0.000
TRUCK LOADING (TRUCK MIX)	0.000	0.000
OTHER / COMMON OPERATIONS		
BAGGING OPERATION	0.000	0.000
Other	0.000	0.000
SUBTOTAL FOR PART 70/INTERMEDIATE	0.000	0.000
SUBTOTAL FOR BASIC STATE	0.000	0.000

HAUL ROADS (ADD TO BASIC STATE SUBTOTAL)	_____	_____
STORAGE PILES (ADD TO BASIC STATE SUBTOTAL)	_____	_____
PART 70 / INTERMEDIATE TOTAL	_____	_____
BASIC STATE TOTAL	_____	_____

SPREADSHEET FOR CRITERIA POLLUTANT EMISSIONS FROM HEATERS, BOILERS, AND NONMOBILE INTERNAL COMBUSTION ENGINES

Heaters and Boilers

Emission factors for natural gas combustion from AP-42 Section 1.4 (1/95)[1].

	PM lb/MMcf	PM_{10} lb/MMcf	SO_x lb/MMcf	NO_x lb/MMcf	VOC lb/MMcf	CO lb/MMcf
< 0.3 MMBtu/hr	11.18	11.18	0.6	94	7.26	40
0.3 < 10 MMBtu/hr	12	12	0.6	100	5.28	21
10 - 100 MMBtu/hr	13.7	13.7	0.6	140	2.78	35

[1]Natural gas heat content can be assumed to be 1050 Btu/scf.

Emission factors for LPG (Propane) combustion from AIRS (SCC 1-03-010-02).

	PM lb/1,000 gal	PM_{10} lb/1,000 gal	SO_x[2] lb/1,000 gal	NO_x lb/1,000 gal	VOC lb/1,000 gal	CO lb/1,000 gal
Butane (0.3 - 10.0 MMBtu)	0.28	0.28	86.5xS	9.4	0.5	1.9
Propane (0.3 - 10.0 MMBtu)	0.26	0.26	86.5xS	8.8	0.47	1.8
Butane (10 - 100 MMBtu)	0.28	0.28	86.5xS	13.2	0.26	3.3
Propane (10 - 100 MMBtu)	0.26	0.26	86.5xS	12.4	0.25	3.1

[2]S is the fuels sulfur content percent (i.e. if sulfur content = 1.0%, then S=1.0). Default sulfur content for propane is 0.00002%.

Emission factors for fuel oil combustion from AP-42 Section 1.3 (2/96)[3].

	PM lb/Mgal	PM_{10} lb/Mgal	SO_x[4] lb/Mgal	NO_x lb/Mgal	VOC lb/Mgal	CO lb/Mgal
Residential Furnace	3	1.08	143.6xS	18	0.713	5
Distillate Oil (0.3 - 10 MMBtu/hr)	2	1.08	143.6xS	20	0.34	5
Distillate Oil (> 10 MMBtu)	2	1	143.6xS	20	0.2	5
No. 5 Fuel Oil (0.3-10 MMBtu/hr)	8.34xS	5.17xS	158.6xS	55	1.13	5
No. 5 Fuel Oil (10 - 100 MMBtu/hr)	8.34xS	5.17xS	158.67xS	55	0.28	5

[3]Fuel oil heat content can be assumed to be 140 MBTU/gal for distillate oil and 150 MBTU/gal for No. 5 fuel oil.

[4]S is the fuels sulfur content percent (i.e. if sulfur content = 1.0%, then S=1.0).

Internal Combustion Engines[5]

Emission factors for internal combustion engines (reciprocating) commercial/instutional[6]/from AIRS.

	PM lb/1,000 gal	PM_{10} lb/1,000 gal	SO_x lb/1,000 gal	NO_x lb/1,000 gal	VOC lb/1,000 gal	CO lb/1,000 gal
Diesel (2-03-001-01)	42.5	42.5	39.7	604.0	49.3	130.0
Gasoline (2-03-003-01)	12.6	12.6	10.6	205	382	7900.0
LPG (2-03-010-01,02)	5.0	5.0	0.35	139	83.0	129.0
Natural Gas (2-03-002-01) - lb/MMSCF	10.0	10.0	0.6	3400.0	82.9	430.0

[5]Emission factors for gasoline and diesel industrial engines from AP-42 Section 3.3 (1/95), Table 3.3-2 can also be used.

[6]0.3-10 MMBtu/hr fuel input (1 MMBtu/hr heat input = 392.75 hp-hr power output).

SPREADSHEET FOR CRITERIA POLLUTANT EMISSIONS FROM HEATERS, BOILERS, AND NONMOBILE INTERNAL COMBUSTION ENGINES

Process I.D. Number	Source Description	Rated Hourly Capacity	Capacity Units	Allowable Fuel Usage	Fuel Usage Units	PM_{10} Emission Factor	PM_{10} ton/yr	SO_x Emission Factor	SO_x ton/yr	NO_x Emission Factor	NO_x ton/yr	VOC Emission Factor	VOC ton/yr	CO Emission Factor	CO ton/yr
					Totals (tpy)		0.0		0.0		0.0		0.0		0.0

WORKSHEET B - RESTRICTION OF EMISSIONS WORKSHEET

If the potential to emit of the facility, as calculated using Worksheet A, is above any of the major source thresholds, the facility can restrict emissions to below the major source thresholds and obtain an Intermediate operating permit. If any voluntary conditions or limitations are placed on the facility or an emission unit, the facility must complete a Form 4B and also show what recordkeeping/monitoring requirements will be used to demonstrate compliance for that condition or limitation.

The table entitled "Spreadsheet For PM_{10} Emission Calculations" can be used to restrict the potential to emit at a facility. The restrictions can be in the form of:

- Restriction of the potential emissions from the facility.

  Input lower ton per year throughputs in the allowable cells until the facility's potential to emit is below major source thresholds. Then list the volunteered emission limitation on Form 4B and develop recordkeeping forms to demonstrate compliance with this limitation.

- Restrictions to use active or baghouse control.

  If the facility is currently using passive emission factors, they can choose to apply controls. The active or controlled emission factors may also be used if the natural moisture content of the rock is always greater than 1.5% by weight. Using this option may require testing periodically to confirm the moisture content of the rock as a condition of the permit. Again, the voluntary restriction must be listed on Form 4B.

- A combination of the above. For example, a facility can limit themselves to 90 percent of their allowable annual throughput being controlled with active suppression and 10 percent of allowable annual throughput uncontrolled using passive emission factors.

  To do this, enter, for example, 0.1 (10 percent) as the flag for passive and 0.9 (90 percent) as the flag for active, making sure that the summation of the two fractions is equal to one.

  Alternatively list the process twice, with a specific annual allowable ton per year throughput for both active and passive processing.

  Using a combination of emission factors and throughputs, as described above, would require daily and monthly recordkeeping. Daily recordkeeping to calculate the emissions for each separate emission factor and monthly recordkeeping for an overall comparison to the 12-month rolling emission limitation to demonstrate compliance.

Examples

1. Limit facility to 100,000 tons of material throughput per year, with a maximum uncontrolled, passive material throughput of 10 percent (10,000 tons). The remaining tons must have a active suppression equivalent. The limitation of 100,000 tons of material throughput per year, with 10% passive material throughput, should correspond to an overall emissions limitation (i.e. less than 100 tons per year of emissions.)

Crusher

EU1	Process I.D.		Below-ground-level dry
	Actual Processed (tpy)	0.1	Passive
	Rated Capacity (tph)	0.9	Active
100,000	Allowable (tpy)		Bag

2. Limit facility to 100,000 tons of material throughput per year, with a maximum uncontrolled, passive material throughput of 10 percent (10,000 tons). The remaining tons must have a active suppression equivalent. The limitation of 100,000 tons of material throughput per year, with 10% passive material throughput, should correspond to an overall emissions limitation (i.e. less than 100 tons per year of emissions.)

Crusher

EU1	Process I.D.		Below-ground-level dry
	Actual Processed (tpy)	1.0	Passive
	Rated Capacity (tph)		Active
10,000	Allowable (tpy)		Bag

Crusher

EU1	Process I.D.		Below-ground-level dry
	Actual Processed (tpy)	1.0	Passive
	Rated Capacity (tph)		Active
90,000	Allowable (tpy)		Bag

A facility may also choose to limit fuel usage using the spreadsheet entitled "Spreadsheet For Criteria Pollutant Emissions From Heaters, Boilers, and Non-Mobile Internal Combustion Engines" This may be accomplished by reducing the allowable fuel usage until the desired emission level is achieved.

WORKSHEET B - POTENITAL TO EMIT
SPREADSHEET FOR PM_{10} EMISSION CALCULATION

1) If the equipment is not covered by a state permit, which limits its potential, then the equipment is considered to be without controls and assumes operation at the maximum rated capacity for 8760 hours/yr for purposes of determining the potential to emit. Therefore, potential to emit will be calculated using the passive, below-grade, or active (for wet controlled and/or moisture content greater than 1.5% by weight) emission factors multiplied by the rated capacity of the equipment at 8760 hours/year.
2) When flagging an individual process as passive, active, or Baghouse, (by inserting a "1" in the space before the option") only control equipment which is included in a valid permit may be credited. A permit condition indicating the process is below grade level is not required to utilize the 50 % control option.
3) If an individual process is underground, enter an 0.2 in the appropriate cell, either passive or active, as the "Flag" to simulate a 80 % control (capture) efficiency. A permit condition indicating the process is underground is not required to utilize the 80% control option.
4) The 'active suppression' emission factors may be used for calculating potential to emit when the equipment uses either the application of a water based dust suppression system sufficient to provide the indicated control or if the moisture content of the rock is greater than 1.5% by weight. Additional controls, such as the capture efficiencies associated with operations being below-grade or underground, may also be included, if appropriate.

PROCESS TYPE		DESCRIPTION	CONTROL FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
CRUSHED STONE PROCESSING / SAND AND GRAVEL							
PRIMARY CRUSHER		PROCESS ID #		Below-grade dry	0.008500		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.017000		
		Rated Capacity (t/hr)		Active	0.004300		
	-	Allowable (t/yr)		Bag	0.000850	0.000	0.000
PRIMARY CRUSHER		PROCESS ID #		Below-grade dry	0.008500		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.017000		
		Rated Capacity (t/hr)		Active	0.004300		
	-	Allowable (t/yr)		Bag	0.000850	0.000	0.000
PRIMARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000
PRIMARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
SECONDARY CRUSHER		PROCESS ID #		Below-grade dry	0.008500		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.017000		
		Rated Capacity (t/hr)		Active	0.004300		
	-	Allowable (t/yr)		Bag	0.000850	0.000	0.000
SECONDARY CRUSHER		PROCESS ID #		Below-grade dry	0.008500		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.017000		
		Rated Capacity (t/hr)		Active	0.004300		
	-	Allowable (t/yr)		Bag	0.000850	0.000	0.000
SECONDARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000
SECONDARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000
TERTIARY CRUSHER		PROCESS ID #		Below-grade dry	0.056000		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.112000		
		Rated Capacity (t/hr)		Active	0.028000		
	-	Allowable (t/yr)		Bag	0.005600	0.000	0.000
TERTIARY CRUSHER		PROCESS ID #		Below-grade dry	0.056000		
(Impact type)		Actual Processed (t/yr)		Passive (0 % control)	0.112000		
		Rated Capacity (t/hr)		Active	0.028000		
	-	Allowable (t/yr)		Bag	0.005600	0.000	0.000
TERTIARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000
TERTIARY CRUSHER		PROCESS ID #		Below-grade dry	0.001200		
(Compression type)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active	0.000590		
	-	Allowable (t/yr)		Bag	0.000120	0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
FINES CRUSHING /		PROCESS ID #		Below-grade dry	0.007500		
GRINDING MILL		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.002000		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
FINES CRUSHING /		PROCESS ID #		Below-grade dry	0.007500		
GRINDING MILL		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.002000		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000
SCREENING (P,S OR T)		PROCESS ID #		Below-grade dry	0.007500		
		Actual Processed (t/yr)		Passive (0 % control)	0.015000		
		Rated Capacity (t/hr)		Active	0.000840		
	-	Allowable (t/yr)		Bag	0.000750	0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
FINES SCREENING		PROCESS ID #		Below-grade dry	0.035500		
		Actual Processed (t/yr)		Passive (0 % control)	0.071000		
		Rated Capacity (t/hr)		Active	0.002100		
	-	Allowable (t/yr)		Bag	0.003550	0.000	0.000
FINES SCREENING		PROCESS ID #		Below-grade dry	0.035500		
		Actual Processed (t/yr)		Passive (0 % control)	0.071000		
		Rated Capacity (t/hr)		Active	0.002100		
	-	Allowable (t/yr)		Bag	0.003550	0.000	0.000
SCREENING		PROCESS ID #		Below-grade dry	0.060000		
(sand and gravel)		Actual Processed (t/yr)		Passive (0 % control)	0.120000		
		Rated Capacity (t/hr)		Active	0.000000		
	-	Allowable (t/yr)		Bag	0.006000	0.000	0.000
SCREENING		PROCESS ID #		Below-grade dry	0.060000		
(sand and gravel)		Actual Processed (t/yr)		Passive (0 % control)	0.120000		
		Rated Capacity (t/hr)		Active	0.000000		
	-	Allowable (t/yr)		Bag	0.006000	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
TRANSFER POINT		PROCESS ID #		Below-grade dry	0.000700		
		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
PILE FORMING STACKER		PROCESS ID #		Below-grade dry	0.030000		
		Actual Processed (t/yr)		Passive (0 % control)	0.060000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
PILE FORMING STACKER		PROCESS ID #		Below-grade dry	0.030000		
		Actual Processed (t/yr)		Passive (0 % control)	0.060000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
SURGE BIN OR		PROCESS ID #		Below-grade dry	0.000700		
STORAGE BIN OR		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
FEED HOPPER		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
SURGE BIN OR		PROCESS ID #		Below-grade dry	0.000700		
STORAGE BIN OR		Actual Processed (t/yr)		Passive (0 % control)	0.001400		
FEED HOPPER		Rated Capacity (t/hr)		Active	0.000048		
	-	Allowable (t/yr)		Bag	0.000070	0.000	0.000
ENCLOSED TRUCK		PROCESS ID #		Below-grade dry	0.000050		
OR RAILCAR LOADING		Actual Processed (t/yr)		Passive (0 % control)	0.000100		
STATION / TRUCK LOADING		Rated Capacity (t/hr)		Active			
- CONVEYOR	-	Allowable (t/yr)		Bag		0.000	0.000
ENCLOSED TRUCK		PROCESS ID #		Below-grade dry	0.000050		
OR RAILCAR LOADING		Actual Processed (t/yr)		Passive (0 % control)	0.000100		
STATION / TRUCK LOADING		Rated Capacity (t/hr)		Active			
- CONVEYOR	-	Allowable (t/yr)		Bag		0.000	0.000
TRUCK UNLOADING		PROCESS ID #		Below-grade dry	0.000008		
(fragmented stone)		Actual Processed (t/yr)		Passive (0 % control)	0.000016		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
TRUCK UNLOADING		PROCESS ID #		Below-grade dry	0.000008		
(fragmented stone)		Actual Processed (t/yr)		Passive (0 % control)	0.000016		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
		PROCESS ID #		Below-grade dry			
DRILLING (WET)		Actual Processed (t/yr)		Passive (0 % control)			
		Rated Capacity (t/hr)		Active	0.000080		
		Allowable (t/yr)		Bag		0.000	0.000
		PROCESS ID #		Below-grade dry			
DRILLING (WET)		Actual Processed (t/yr)		Passive (0 % control)			
		Rated Capacity (t/hr)		Active	0.000080		
	-	Allowable (t/yr)		Bag		0.000	0.000
MATERIAL TRANSFER /		PROCESS ID #		Below-grade dry	0.003200		
CONVEYING		Actual Processed (t/yr)		Passive (0 % control)	0.006400		
(sand and gravel)		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
MATERIAL TRANSFER /		PROCESS ID #		Below-grade dry	0.003200		
CONVEYING		Actual Processed (t/yr)		Passive (0 % control)	0.006400		
(sand and gravel)		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
MATERIAL TRANSFER /		PROCESS ID #		Below-grade dry	0.003200		
CONVEYING		Actual Processed (t/yr)		Passive (0 % control)	0.006400		
(sand and gravel)		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
MATERIAL TRANSFER /		PROCESS ID #		Below-grade dry	0.003200		
CONVEYING		Actual Processed (t/yr)		Passive (0 % control)	0.006400		
(sand and gravel)		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
BULK LOADING		PROCESS ID #		Below-grade dry	0.001200		
(sand and gravel)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
BULK LOADING		PROCESS ID #		Below-grade dry	0.001200		
(sand and gravel)		Actual Processed (t/yr)		Passive (0 % control)	0.002400		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000

PROCESS TYPE		DESCRIPTION		FLAGS	EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
CONCRETE BATCHING							
SAND AND AGGREGATE		PROCESS ID #		Below-grade dry	0.014500		
TRANSFER TO ELEVATED		Actual Processed (t/yr)		Passive (0 % control)	0.029000		
BIN		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
SAND AND AGGREGATE		PROCESS ID #		Below-grade dry	0.014500		
TRANSFER TO ELEVATED		Actual Processed (t/yr)		Passive (0 % control)	0.029000		
BIN		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
CEMENT UNLOADING TO		PROCESS ID #		Below-grade dry	0.135000		
ELEVATED STORAGE		Actual Processed (t/yr)		Passive (0 % control)	0.270000		
SILO - PNEUMATIC		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
CEMENT UNLOADING TO		PROCESS ID #		Below-grade dry	0.135000		
ELEVATED STORAGE		Actual Processed (t/yr)		Passive (0 % control)	0.270000		
SILO - PNEUMATIC		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
CEMENT UNLOADING TO		PROCESS ID #		Below-grade dry	0.070000		
ELEVATED STORAGE		Actual Processed (t/yr)		Passive (0 % control)	0.140000		
SILO - BUCKET ELEVATOR		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
CEMENT UNLOADING TO		PROCESS ID #		Below-grade dry	0.070000		
ELEVATED STORAGE		Actual Processed (t/yr)		Passive (0 % control)	0.140000		
SILO - BUCKET ELEVATOR		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
WEIGH HOPPER LOADING		PROCESS ID #		Below-grade dry	0.005000		
		Actual Processed (t/yr)		Passive (0 % control)	0.010000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
WEIGH HOPPER LOADING		PROCESS ID #		Below-grade dry	0.005000		
		Actual Processed (t/yr)		Passive (0 % control)	0.010000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000

PROCESS TYPE		DESCRIPTION	FLAGS		EMISSION FACTOR PM_{10} LBS/TON	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
MIXER LOADING		PROCESS ID #		Below-grade dry	0.010000		
(CENTRAL MIX)		Actual Processed (t/yr)		Passive (0 % control)	0.020000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
TRUCK LOADING		PROCESS ID #		Below-grade dry	0.005000		
(TRUCK MIX)		Actual Processed (t/yr)		Passive (0 % control)	0.010000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
BAGGING OPERATION		PROCESS ID #		Below-grade dry	0.060000		
		Actual Processed (t/yr)		Passive (0 % control)	0.120000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
BAGGING OPERATION		PROCESS ID #		Below-grade dry	0.060000		
		Actual Processed (t/yr)		Passive (0 % control)	0.120000		
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
		PROCESS ID #		Below-grade dry			
		Actual Processed (t/yr)		Passive (0 % control)			
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000
		PROCESS ID #		Below-grade dry			
		Actual Processed (t/yr)		Passive (0 % control)			
		Rated Capacity (t/hr)		Active			
	-	Allowable (t/yr)		Bag		0.000	0.000

EMISSION SUMMARY

CRUSHED STONE PROCESSING / SAND AND GRAVEL	ACTUAL EMISSIONS CONTROLLED PM_{10} TONS/YR	TITLE V POTENTIAL PM_{10} TONS/YR
PRIMARY CRUSHING	0.000	0.000
SECONDARY CRUSHING	0.000	0.000
TERTIARY CRUSHING	0.000	0.000
FINES CRUSHING / GRINDING MILL	0.000	0.000
SCREENING (P,S, OR T)	0.000	0.000
SCREENING (FINES)	0.000	0.000
SCREENING (SAND AND GRAVEL)	0.000	0.000
TRANSFER POINTS	0.000	0.000
PILE FORMING STACKER	0.000	0.000
SURGE BIN, STORAGE BIN, OR FEED HOPPER	0.000	0.000
ENCLOSED TRUCK OR RAILCAR LOADING STATIONS / TRUCK LOADING - CONVEYOR	0.000	0.000
TRUCK UNLOADING (FRAGMENTED STONE)	0.000	0.000
DRILLING (WET)	0.000	0.000
MATERIAL TRANSFER / CONVEYING (SAND AND GRAVEL)	0.000	0.000
BULK LOADING (SAND AND GRAVEL)	0.000	0.000
CONCRETE BATCHING		
SAND AND AGGREGATE TRANSFER TO ELEVATED BIN	0.000	0.000
CEMENT UNLOADING TO ELEVATED STORAGE SILO - PNEUMATIC	0.000	0.000
CEMENT UNLOADING TO ELEVATED STORAGE SILO - BUCKET ELEVATOR	0.000	0.000
WEIGH HOPPER LOADING	0.000	0.000
MIXER LOADING (CENTRAL MIX)	0.000	0.000
TRUCK LOADING (TRUCK MIX)	0.000	0.000
OTHER / COMMON OPERATIONS		
BAGGING OPERATION	0.000	0.000
Other	0.000	0.000
SUBTOTAL FOR PART 70/INTERMEDIATE	0.000	0.000
SUBTOTAL FOR BASIC STATE	0.000	0.000

HAUL ROADS (ADD TO BASIC STATE SUBTOTAL)	_____	_____
STORAGE PILES (ADD TO BASIC STATE SUBTOTAL)	_____	_____
PART 70 / INTERMEDIATE TOTAL	_____	_____
BASIC STATE TOTAL	_____	_____

SPREADSHEET FOR CRITERIA POLLUTANT EMISSIONS FROM HEATERS, BOILERS, AND NONMOBILE INTERNAL COMBUSTION ENGINES

Heaters and Boilers

Emission factors for natural gas combustion from AP-42 Section 1.4 (1/95)[1].

	PM lb/MMcf	PM_{10} lb/MMcf	SO_x lb/MMcf	NO_x lb/MMcf	VOC lb/MMcf	CO lb/MMcf
< 0.3 MMBtu/hr	11.18	11.18	0.6	94	7.26	40
0.3 < 10 MMBtu/hr	12	12	0.6	100	5.28	21
10 - 100 MMBtu/hr	13.7	13.7	0.6	140	2.78	35

[1]Natural gas heat content can be assumed to be 1050 Btu/scf.

Emission factors for LPG (Propane) combustion from AIRS (SCC 1-03-010-02).

	PM lb/1,000 gal	PM_{10} lb/1,000 gal	SO_x[2] lb/1,000 gal	NO_x lb/1,000 gal	VOC lb/1,000 gal	CO lb/1,000 gal
Butane (0.3 - 10.0 MMBtu)	0.28	0.28	86.5xS	9.4	0.5	1.9
Propane (0.3 - 10.0 MMBtu)	0.26	0.26	86.5xS	8.8	0.47	1.8
Butane (10 - 100 MMBtu)	0.28	0.28	86.5xS	13.2	0.26	3.3
Propane (10 - 100 MMBtu)	0.26	0.26	86.5xS	12.4	0.25	3.1

[2]S is the fuels sulfur content percent (i.e. if sulfur content = 1.0%, then S=1.0). Default sulfur content for propane is 0.00002%.

Emission factors for fuel oil combustion from AP-42 Section 1.3 (2/96)[3].

	PM lb/Mgal	PM_{10} lb/Mgal	SO_x[4] lb/Mgal	NO_x lb/Mgal	VOC lb/Mgal	CO lb/Mgal
Residential Furnace	3	1.08	143.6xS	18	0.713	5
Distillate Oil (0.3 - 10 MMBtu/hr)	2	1.08	143.6xS	20	0.34	5
Distillate Oil (> 10 MMBtu)	2	1	143.6xS	20	0.2	5
No. 5 Fuel Oil (0.3-10 MMBtu/hr)	8.34xS	5.17xS	158.6xS	55	1.13	5
No. 5 Fuel Oil (10 - 100 MMBtu/hr)	8.34xS	5.17xS	158.67xS	55	0.28	5

[3]Fuel oil heat content can be assumed to be 140 MBTU/gal for distillate oil and 150 MBTU/gal for No. % fuel oil.

[4]S is the fuels sulfur content percent (i.e. if sulfur content = 1.0%, then S-1.0).

Internal Combustion Engines

Emission factors for gasoline and diesel industrial engines from AP-42 Section 3.3 (1/95), Table 3.3-2.

	PM lb/hp-hr	PM_{10} lb/hp-hr	SO_x lb/hp-hr	NO_x lb/hp-hr	VOC lb/hp-hr	CO lb/hp-hr
Gasoline	7.21E-04	7.21E-04	5.91E-04	0.011	0.022	0.439
Diesel fuel	2.20E-03	2.20E-03	2.05E-03	0.031	2.51E-03	6.68E-03

Emission factors for internal combustion engines (reciprocating) commercial/instutional[1]/from AIRS.

	PM lb/1,000 gal	PM_{10} lb/1,000 gal	SO_x lb/1,000 gal	NO_x lb/1,000 gal	VOC lb/1,000 gal	CO lb/1,000 gal
Diesel (2-03-001-01)	42.5	42.5	39.7	604.0	49.3	130.0
Gasoline (2-03-003-01)	12.6	12.6	10.6	205	382	7900.0
LPG (2-03-010-01,02)	5.0	5.0	0.35	139	83.0	129.0
Natural Gas (2-03-002-01) - lb/MMSCF	10.0	10.0	0.6	3400.0	82.9	430.0

[1]0.3-10 MMBtu/hr fuel input (1 MMBtu/hr heat input = 392.75 hp-hr power output).

SPREADSHEET FOR CRITERIA POLLUTANT EMISSIONS FROM HEATERS, BOILERS, AND NONMOBILE INTERNAL COMBUSTION ENGINES

Process I.D. Number	Source Description	Rated Hourly Capacity	Capacity Units	Allowable Fuel Usage	Fuel Usage Units	PM_{10} Emission Factor	PM_{10} ton/yr	SO_x Emission Factor	SO_x ton/yr	NO_x Emission Factor	NO_x ton/yr	VOC Emission Factor	VOC ton/yr	CO Emission Factor	CO ton/yr
Totals (tpy)															